The 16th NREL Industry Growth Forum – Summary Findings from the Project Financing Session

Project financing is a topic that deserves more attention from both the public and private sector – especially for those projects based on renewable energy technology, because of the growing need to determine ways to bridge the gap between venture and project financing. As one of the 16th Industry Growth Forum participants said, "I found the project finance section of the forum to be very timely…. I hope this is a regular session at NREL conferences."

The discussions among the panel and audience highlighted the fact that "project finance is the missing ingredient in a successful financing plan for many energy technology companies since.. …venture capital is just too expensive to use for financing the deployment of a company's products." Many energy technology companies are challenged with the parallel need to raise both equity capital as well as project financing (both debt and equity) for customers and projects that procure the company's products. This is because neither the vendor nor end user of the power has the ability to finance the deal without a significant debt piece. Thus, project financing is often the only way that energy technology firms can sell products and "cross the chasm" from early adopters to mainstream customers.

Though, in its simplest form, the concept of project financing dates back to the 17th century, its current embodiment took shape circa 1970. Since that time it has been developing rapidly within the finance community, and a wealth of anecdotal, (albeit limited statistical) information exists. And project financing is still evolving, with the potential for significant innovation; e.g. especially in the area of collaborative public-private financing including elements such as loan guarantees.

While project finance has many meanings for many people, traditional project finance requires a number of common basic ingredients (e.g. see Michael Ware's presentation on the Forum web site http://www.nrel.gov/technologytransfer/entrepreneurs/16_forum_results.html). More specifically, project financing is asset based financing (project lenders have recourse only to the project resources), where the debt to equity ratio is typically large (e.g. often in the 70/30% range), and where the cash flow revenue from the financed project must be able to repay both the debt and equity investments, as well as administrative costs associated with developing and structuring the project (see for example, Esty[1]). Traditionally, project financing has been focused on larger scale endeavors (Esty defines large as > $500M) where transaction costs can be more easily absorbed. Moreover typically, large projects are based on technologies where the technical risks are considered (by the private sector finance community) to be negligibly small.

Risks were a focal point for a lot of the discussion, as project finance has the explicit goal of allocating risk to various project participants, or having sufficient information to evaluate the risk for the financial institutions. There are numerous kinds of risks that must be effectively addressed before project financing can be attained; technical risk is the most basic of these and this risk must be addressed as a prerequisite to any dialogue with investors. Technical risks for a new product (implicitly, with little commercial evaluation) are inherently inconsistent with this project finance requirements – as one Forum panelist said – "project finance and technical risk are difficult topics in the same sentence." Relative to the issue of risk, some key points discussed include:

[1] Esty, Benjamin C. (2004). *Modern Project Finance*. New York: John Wiley and Sons.

- Risk considerations must be dealt with effectively, especially for renewable energy projects sponsored by newly formed companies (that presumably have no credit track record), and new technology that is not sufficiently tested in the market place.
- With respect to risk, there is a need to develop a smooth interface between venture and project financiers.[2]
- It is critical to know the hurdles that developers of projects and developers of new technology are dealing with in the market. From an equity providers' view, there is a need to stay current on the types of issues of concern and think creatively about how to manage technology risks.
- It is useful to inform developers about the most strenuous tests that both debt and equity providers will put them through before writing checks.
- Also, it is important to share information about putting the risk management for projects in the right hands, and at the right stage of project development; e.g. enabling the entity that has the skill set to manage the risk appropriate to them.
- Finally, entrepreneurs often interpret technical risk differently (less stringently and broadly) than do private sector equity investors or debt lenders. An entrepreneur that has progressed through a working bench model, and even an alpha test, and pilot scale site that seems to be working, often feels that this is sufficient to push for commercialization. Not so for those with project finance credit requirements – who typically want to see technical verification and acceptance in the market place. This again points to the need for a financing bridge between working models of the technology and commercial products and the associated project financing.
- One definitive conclusion is that technical risk must be dealt with as thoroughly as possible if the private sector is to be engaged, and in a way that satisfies the private sector needs. The public sector will continue to have a significant role in this arena.

In addition, a number of other issues were raised that financiers and entrepreneurs must successfully negotiate and deal with, including:

- Size matters – The project financing industry is geared towards large projects where the organizational, contractual and governance structures needed to effectively integrate the various project participants results in sizeable and largely fixed large transaction costs; with large size these transaction costs are easy to absorb. However, the small size for many renewable energy projects, can drive up the relative transaction costs dramatically making the financing cost prohibitive. In addition, these transaction cost issues will be exacerbated by any additional perceived technical (and other) risks, thus making many small renewable energy projects almost impossible to finance using traditional project financing methods. Thus the need for innovative approaches to deal with the relatively small size of renewable projects.
- Also, it was clear from the 16th Industry Growth Forum project finance case studies – who all affirmed the importance of addressing each of the prerequisite project elements including the risk perspectives of all the key players - that these successful companies have had to be quite innovative and creative in attaining their project financing. Further, it is clear that there are no silver bullets when it comes to project financing – as no universal roadmap exists. The opportunities for more innovative approaches in public/private partnerships in renewable energy project financing appear to be large.

[2] Though there over 100 participants, few venture capitalists were in the audience at the start of the session, and there were a number of panelists and entrepreneurs that voiced their desire that more venture capitalists would had joined the dialogue.

- Beyond the technical risk issue – which is absolutely essential to resolve - we should also be cognizant of the difficulties in project financing within the context of the larger picture of the project financing industry. This includes general malaise of the project financing and power generation industries, along with the related the failure of merchant power plants, post “Enron,” as well as the generally difficult recent economic conditions. Nevertheless project financing for renewable energy remains a significant issue and will remain so because of the size/scale issues, and the lack of familiarity with renewable energy, unless other creative solutions including public-private partnerships are developed.

This session seemed to be a good initial step in establishing further dialogue between a broader spectrum of public and private sector investors and entrepreneurs. Based on feedback from both experts in the audience and panelists, it has been suggested that this topic be continued at future NREL Industry Growth Forums. It appears that this project finance session has provided an initial catalyst for thoughts around defining and developing new approaches for project financing.